

REVIEWS



Foresight in Science - Picking the Winners

J Irvine and B R Martin, *Pinter* £12.95

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The planning of science was a political goal that fired the enthusiasm of a whole generation of progressive scientists during the 1930s and 40s. Its proponents ranged from the communist physicist J D Bernal to the head of Britain's radar research programme Sir Robert Watson Watt. The planners considered themselves vindicated by the success of state organised research during World War Two. But there was a backlash in the Society for the Freedom of Science. And the onset of the Cold War and Lysenkoism saw the planners in retreat and British governments persistently refusing to adopt an explicit co-ordinated and planned policy for science.

At a theoretical level the implicit 'science push' model of the planners - that economic and welfare goals could be achieved through selection and support of scientific research - was increasingly chal-

lenged by the theory of 'market pull', in which economic and social demand are considered adequate to shape the pattern of research. In the early 1970s this conflict culminated in Rothschild's division of government sponsored scientific research into two simple categories: basic and applied. The goal of basic research was simply to increase knowledge for its own sake, and decisions on allocation could safely be left to the scientific elite. Applied research had a practical end, and should therefore be commissioned by the customer, ie the government department which desired that end. Critics at the time argued that this approach neglected a third category of science, strategic research, which combined long term practical objectives with a need to make advances in basic knowledge. It would require more conscious direction even though it was beset by the uncertainties of fundamental research. This received short shrift at the time, but the lobby to reinstate strategic science is now in full swing.

Irvine and Martin's book represents the most considered case to date, advocating a policy for strategic science and recognising that it involves long term social planning. Sir Ronald Mason of the Advisory Board for the Research Councils introduces the book with an explicit attack on the Rothschild approach: 'the so-called customer-contractor relationship. . . was not providing adequate support for important strategic research.' This is seen to be an underlying cause of Britain's lag in areas such as information technology and biotechnology.

Irvine and Martin address two central issues involved in such a policy. The first is

the extent to which foresight can be exercised in relation to strategic research. The second is how choices are to be made as to which areas among the possible options merit state support. They seek the answer to these issues through a review of research forecasting in France, West Germany, the United States and Japan. It is revealing to note that while the science planners of the 1930s looked to the Soviet Union for their model, it is Japan that provides the inspiration for the policy reformers of the 1980s. The authors seek to promote state intervention to undertake collective research in 'risky, pre-competitive, strategic' areas. But they wish to avoid 'the dangers often associated with central planning'. This combination is a desirable one, and the authors' enthusiasm for the Japanese Science and Technology Agency is understandable perhaps, when contrasted with the rudimentary approach of other countries. But this enthusiasm leads to an uncritical advocacy of a policy process dominated by industrial enterprises and associations. They are anxious to dislodge the scientists from their dominant 'peer review' role in basic research policy: 'the task of identifying national basic research priorities cannot be devolved to the scientific community in the shape of its professional organisations'; however they have neglected the possibility of a wider but more democratic planning process. This neglect must seriously undermine any claims they might make to be advocating an opening up of science policy to the public arena. To have any substance this must involve new forms of representation for organisations of workers and consumers in the formulation of research priori-

ties. Without this one is simply substituting one form of self interest for another.

With this major reservation, it is still refreshing to read a cogent argument for a renewal of science policy based on the view that basic research is important in social and economic terms, and is amenable to conscious foresight and planning.

In order to plan, of course, one needs adequate information. It is an illustration of the sorry state of British science policy that it is only since 1984 that there has been a comprehensive review of government spending on science. The rudimentary data on 'strategic science' provided in this edition reinforces the criticisms by Irvine and Martin of the effective absence of policy in this sphere.

But the data presented in the review does enable the compilation of an accurate picture of the impact of Thatcherism on British science. From 1982-84 cuts in real expenditure on civil research are evident. In the university sector the decline is apparent from 1981. At the same time military research, which slipped below 50% in the late 70s, has been restored to its majority status in the science budget. It is apparent that while there is space for new initiatives on strategic science policy, there are some rather more obvious problems for British scientific research - underspending, and misallocation of resources.

The Annual Review represents a step towards greater co-ordination and foresight in science, but without any accompanying democratic structural reform the existing problems and patterns will persist.

Fred Steward